

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



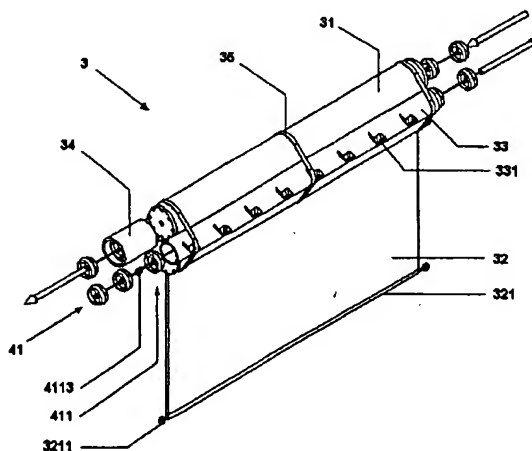
(43) International Publication Date  
13 May 2004 (13.05.2004)

PCT

(10) International Publication Number  
WO 2004/040067 A1

- (51) International Patent Classification<sup>7</sup>: E02B 15/04 (74) Agent: NOVAES, Maria Célia Coelho; C. NOVAES & ASSOCIADOS, Av. Presidente Vargas, Nº 534 - sala 2101, Centro, 20071-003 Rio de Janeiro (BR).
- (21) International Application Number: PCT/BR2003/000152 (81) Designated States (*national*): NO, US.
- (22) International Filing Date: 30 October 2003 (30.10.2003) (84) Designated States (*regional*): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).
- (25) Filing Language: English
- (26) Publication Language: English Declaration under Rule 4.17:  
— of inventorship (Rule 4.17(iv)) for US only
- (30) Priority Data: PI 0204546-0 30 October 2002 (30.10.2002) BR Published:  
— with international search report
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(72) Inventor: FERREIRA, Rodrigo Carvalho [BR/BR]; Rua da Passagem, Nº 107 - casa 05, Botafogo, 22290-030 Rio de Janeiro (BR). For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ACTIVE BARRIER FOR POLLUTED WATERS AND METHOD FOR ITS INSTALLATION



(57) Abstract: The invention relates to an active barrier (1) and a method for its use. The active barrier (1) is used to contain and to collect polluting material floating over bodies of water, such as river, lakes, lagoons, bays or open oceans. More specifically, the active barrier is used in a situation in that pollution is caused by a liquid lighter than the water and immiscible with it, such as oil. The invention comprises a plurality of floating containment modules (3) which are interlinked to form the active barrier (1). When the latter is used in the open ocean it is required to use two supporting units (2), e.g. two vessels, to surround the mass of floating polluting material. Each containment module (3) is provided with collecting tubes (33), into which impeller modules (411) displace in a predetermined direction. The impeller modules (411) may be continuous or spaced apart. The displacement of the impeller modules (411) causes a pumping effect of pollutes water into the collecting tubes (33), and thereby the polluted waters are continuously pumped to traction and treatment assemblages (4) located at the supporting units (2).

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# INTERNATIONAL SEARCH REPORT

Application No  
PCT/BR 03/00152

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 E02B15/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 E02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 578 147 A (SVILUPPO SETTORI IMPIEGO SRL) 12 January 1994 (1994-01-12) column 6, line 34 -column 7, line 15; figures 5-11	1
X	US 3 700 593 A (HOUBOLT JACOB J H C ET AL) 24 October 1972 (1972-10-24) column 2, line 38 -column 3, line 56; figures	1
A	US 5 169 526 A (GOULD WILLIAM L) 8 December 1992 (1992-12-08) cited in the application column 4, line 6 - line 39; figures	1,2

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

20 January 2004

Date of mailing of the international search report

27/01/2004

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

Location No

PCT/BR 03/00152

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0578147	A	12-01-1994	IT 1255419 B DE 69316276 D1 DE 69316276 T2 DK 578147 T3 EG 20229 A EP 0578147 A1 ES 2112356 T3 GR 3026002 T3 JP 6158631 A NO 932496 A US 5423985 A	31-10-1995 19-02-1998 20-08-1998 09-02-1998 31-12-1997 12-01-1994 01-04-1998 30-04-1998 07-06-1994 10-01-1994 13-06-1995
US 3700593	A	24-10-1972	BE 720901 A CH 486609 A DE 1784765 A1 FR 1580694 A GB 1187605 A NL 6813200 A	17-03-1969 28-02-1970 18-11-1971 05-09-1969 08-04-1970 20-03-1969
US 5169526	A	08-12-1992	NONE	